Implanting miltary rights and wrongs

Extended abstract

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***Abstract*—This article considers the issues that arise in the potential conflict of rights and curtailed rights under "military law". It focuses on the matters that arise when services personnel are implanted with technologies such as radio frequency identification (RFID) devices. The work presented is based on Australian law. It shows that, based on statute and case law, compulsory RFID implantation of RFID devices for military personnel is likely to be enforceable.**

Keywords—human implant; implant; military law; regulation; RFID

I. Introduction

There are risks and potential benefits that flow from the implantation of radio frequency identification (RFID) devices into humans. The potential benefits in respect of military personnel may be considered great enough to outweigh any potential risks. In particular, the ability to identify military personnel without the need for "dog tags", worn around the neck, could be beneficial.

This article considers the legal and regulatory issues associated with human implantation of RFID devices in military personnel. It does so by analysing the law in a single jurisdiction, being Australia. The rationale for choosing Australia as the jurisdiction is threefold. First, the extent to which military decision making bodies can operate has been established by the High Court of Australia. As described in the article, this Court has caused the establishment of an Australian Military Court to be reversed. Second, the High Court of Australia has also considered issues associated with reactions to vaccinations by a serviceman and this has consequences for the analysis of implants. Third, Australia does not have either a Bill of Rights or a Human Rights Act. The constitution provides a limited set of rights and others have been developed, sometimes creatively, by the High Court and by limited legislative reforms. As a result, the analysis of the extent to which military justice has removed rights in respect of implants can be determined. In addition to these three matters, in the most populous state of Australia (New South Wales), there is a requirement that companion animals such as cats and dogs have RFID implants and that these are ISO-compliant (ISO 117784) full duplex devices.

The article commences by considering the literature on the risks and acceptability of implantation of RFID devices. It starts by looking at risks to animals and then moves on to human risk. The risk section ends by considering the potential tactical risks (and benefits) implantation of RFID devices in a military context.

The next step is an analysis of the differences between the law that applies to everyone in Australia and the additional impositions imposed by "military law". The analysis includes a review of some of the constitutional issues in order to allow the work to be applied outside of the jurisdiction of Australia.

The next section of the article then considers implantation. It does this by comparing the issues of implantation of an RFID device with issues associated with vaccination. The Australian context where childhood vaccination is not mandatory, but where failure of a parent to procure that their child is vaccinated limits access to social security payments and excluded from public education if there is an outbreak of a vaccine-preventable disease in the school.

The paper ends by summarising and drawing conclusions.

II. Positioning the work

A. Radio Frequency Identification devices

RFID devices generally consist of a silicon device which holds information, an inductor and a capacitor. The device is passive. A reader "illuminates" the device by transmitting at the resonant frequency of the capacitor inductor pair. This provides power to allow the silicon device to transmit the information that is stored on it. RFID devices designed for implantation in animals and complying with relevant International Standards Organisation (ISO) standards have a resonant of 125/134.2 kHz in the low frequency band. This contrasts with the resonant frequency used in "smart card" devices of about 13.56 MHz in the high frequency band. Ultra High Frequency RFID devices operating at 432 MHz are also also standardized by ISO.

B. Medical Applications of Radio Frequency Identification Devices

The general use of RFID devices for health care purposes may be acceptable to the general public. For example, a study in Slovenia found that the attitude of respondents toward adoption of microchips depends on their personal characteristics and on characteristic of microchip. The biggest concern of the respondents was the possibility of GPS tracking of microchip [1]. Marina and Perri provide a useful summary of the application of implanted RFID devices in medical applications including glucose monitoring and orthopedic prosthesis Identification [2]. Other work in orthopedics prosthesis proposes the use RFID devices to measure the operating characteristics of the prosthesis in vitro [3], [4]. Some of this work has a focus on antenna design for UHF operation and there has been a focus on implant antenna design at UHF by others [5].

C. Likely military devices

If an implant is used in a military environment, the first application is likely to be the replacement of other forms of identification such as an identity necklace (commonly known as "dog tags"). The US army dog tag includes the defence person's name (first last and middle initial), blood group, religion and identification number. The US army used the person's social security number for a period after the second world war and this was replaced with an army identifier with effect from November 2015. The Australian tags contain similar information but add a country identifier and only use initials and last name.

Defence personnel from most countries have either two tags or a tag that can be broken into two. In the case of death, one tag stays with the body and the other is used to record the fatality.

III. Australian military law

A. Defence Force Discipline Act 1982

Australia's military law is a combination of the general law (both statute law and common law) with specific obligations created under the *Defence Force Discipline Act 1982* (Cth). This legislation relevantly provides (in section 15F) that: a person who is a defence member commits an offence if the person is under orders to prepare for, or to carry out, operations against the enemy and the person does not use his or her utmost exertions to carry those orders into effect. The maximum punishment for this offence is imprisonment for 15 years.

Under section 3, an order includes: a general order; and a command given to a member of the Defence Force by a superior officer.

One of the likely general orders is the requirement to wear dog tags. Being vaccinated in accordance with military recommendations is also likely to fall under a general order. It is also likely that any order for personnel to be implanted with an RFID device will be a general one, rather than a command given by a superior officer.

IV. Risks

A. Military risks and issues

One of the greatest potential risks that arises in a tactical environment is that the RFID devices are "illuminated" by an enemy in order to locate forces. This is most likely to be an issue for special forces and for ground forces in unconventional warfare. The potential would be for a series of "reader" devices to be used to detect opposing forces in a form of electronic "tripwire". However, this would also lead to the potential for subterfuge by sending appropriately dimensioned (number and spread) device arrays to trigger the tripwire. An alternative would be to screen the RFID device in certain battlefield deployments. A simple conductive shield would be sufficient to limit the potential for unwanted illumination.

This illumination risk can also be minimised by choosing a frequency for the implant. The low frequency devices used to identify domestic animals require the reader to be within a few centimetres of the surface of the skin. Although this technology choice also restricts the use of the implant to identification, this compromise might be an appropriate one.

B. Risk of injury

When an RFID device is implanted, there may be a risk to the recipient. This risk can arise from anaphylactic shock associated with the implantation or some subsequent reaction to the device. Arguably, this risk is comparable to the risk which arises from vaccinations.

In 2016, the High Court of Australia provided a judgment which is appropriate to this analysis. In Military Rehabilitation and Compensation Commission v Benjamin James Edward May [2016] HCA 19, the High Court found that an illness caused by a vaccination was not an "injury" as defined in s 4(1) of the Safety, Rehabilitation and Compensation Act 1988 (Cth). The consequence for May was that he was not entitled to compensation under s 14 of that Act. The initial Tribunal and a single Federal Court judge on appeal from that Tribunal concluded that Mr May's claim failed because he had not proved a 'sudden or identifiable physiological change'.

The Full Court Federal Court upheld a further appeal by May. It found that there was no need for a medical diagnosis to demonstrate a causal link between his illness and the vaccinations. However, the High Court determined that Mr May's illness was not an injury.

This judgment is likely to provide a strong indication that implantation that causes illness but not injury may be an acceptable risk from a military perspective.

V. Conclusions

The requirement for military personnel to wear "dog tags" is widely practiced on a global basis. An extension of the general order that enforces this requirement to RFID implants would seem to be consistent with general orders requiring military personnel to have vaccinations.

There are operational and injury risks to be taken into account. However, a 2016 decision by the High Court of Australia indicates that an illness caused by implantation would not be considered to be an injury and this would be a key consideration in risk assessment associated with RFID implanatation.

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